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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,017	06/21/2001	Craig Lyle Stevens		7519

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EXAMINER	
MOORE, KARLA A	

ART UNIT	PAPER NUMBER
1763	

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14

Please find below and/or attached an Office communication concerning this application or proceeding.

CLO-14

Office Action Summary	Application No. 09/888,017	Applicant(s) STEVENS, CRAIG LYLE	
	Examiner Karla Moore	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-8 and 13-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-8 and 13-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-2, 5-6, 13-14, 17 and 19-20 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. US 2002/0033136 A1 to Savage et al. in view of U.S. Patent No. 6,007,675 to Toshima.

3. Kroeker discloses a wafer processing system in Figure 12 substantially as claimed and comprising: a loading station (606); three process chambers (604) maintained at a predetermined pressure during normal operation (page 4, paragraph 41); and a first single-wafer load lock (200, also see Figures 2 and 3) directly adjacent to the process module having a single wafer support (page 3, paragraph 33), the first single-wafer load lock being coupled to receive a wafer originating in the loading station (page 6, paragraph 58).

4. However, Kroeker fails to teach the process chamber having a plurality of processing stations.

5. Toshima teaches the use of a process chamber having a plurality of processing stations for the purpose of exposing substrates to a multiplicity of processing environments within the same process chamber (column 5, rows 66 through column6, row 11; Figure 4A, Toshima calls it a transfer chamber).

6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a process chamber with a plurality of processing stations in Kroeker in order to expose substrates to a multiplicity of processing environments within the same process chamber as taught by Toshima.

7. With respect to claims 2 and 6, as noted above, Kroeker discloses the invention substantially as claimed.

8. However, Kroeker further fails to teach a second wafer load lock directly adjacent to said process chamber.

9. Toshima teaches the use of two load lock chambers so that processing of wafers can continue uninterrupted by a delay caused by the need to open, empty and re-equlibrate a single load lock chamber (abstract). Examiner notes that while not explicitly disclosed it would be obvious for each of the load locks to have a pump dedicated exclusively to evacuating the respective load lock because the load locks are designed to work independently of one another.

10. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a second wafer load lock directly adjacent to the process chamber in Kroeker in order to continue the processing of wafers without delay that may be caused by the need to open, empty and re-equlibrate a single load lock chamber as taught by Toshima.

11. With respect to claims 5, 14 and 17, the system of Kroeker further comprises an atmospheric robot (Figure 12, 602; page 6, paragraph 58) between the loading station and the single-wafer load lock.

12. With respect to claim 13, each of the load locks has an opening in communication with the processing module (Figure 2, 248) and another opening in communication with the loading station (Figure 2, 266; page 6, paragraph 55).

13. With respect to claim 19, as noted above, the process module comprises a plurality of processing stations (604).

14. With respect to claim 20, Toshima teaches that each of the stations may have may have an individual temperature control means (heating) for the purpose of obtaining a particular set point for a desired processing application (column 15, rows 31-52 and column 23, rows 36-42).

15. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker and Toshima as applied to claims 1-2, 5-6, 13-14, 17and 19-20 above, and further in view of U.S. Patent No. 6,042,324 to Aggarwal et al.

16. Kroeker and Toshima disclose the invention substantially as claimed and as described above.

17. However, Kroeker and Toshima fail to teach the loading station as a front opening unified pod (FOUP).

18. Aggarwal et al. teach using a FOUP for the purpose of transferring wafers between apparatus and isolating them from contamination (column 1, rows 11-27).

19. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a FOUP in Kroeker and Toshima in order to transfer wafers between apparatus while isolating them from contaminants as taught by Aggarwal et al.

20. Claim 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker as applied to claims 1-2, 5-6, 13-14, 17 and 19-20 above, and further in view of U.S. Patent Publication No. 2002/0033136 A1 to Savage et al.

21. Kroeker and Toshima disclose the invention substantially as claimed and as described above.

22. However, Kroeker and Toshima fail to teach a wafer support with an integral cooling unit.

23. Savage et al. disclose a load lock chamber including a pedestal having an integral cooling unit for the purpose of cooling processed wafers before they are removed from the load lock to minimize wafer transfer failures resulting from thermally warped wafers and cassette failures from high temperature post-processed wafers (page 5, paragraphs 60-64).

24. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an integral cooling unit in the load lock chamber of Kroeker and Toshima in order to cool processed wafers before they are removed from the load lock to minimize wafer transfer failures resulting from thermally warped wafers and cassette failures from high temperature post-processed wafers as taught by Savage et al.

25. With respect to claim 20, Kroeker further fail to teach at least one of the plurality of processing units is capable of heating a supported wafer.

26. Savage et al. teach at least one of the plurality of processing stations capable of heating a supported wafer (page 6, paragraphs 67 and 68) for the purpose of preheating a wafer prior to processing.

27. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided processing units capable of heating a supported wafer in Kroeker in order to preheat a wafer prior to processing as taught by Savage.

28. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker and Toshima as applied to claims 1-2, 5-6, 13-14, 17 and 19-20 above, and further in view of U.S. Patent No. 5,314,541 to Saito et al.

29. Kroeker and Toshima disclose the invention substantially as claimed and as described above.

30. However, Kroeker and Toshima fail to teach a wafer support with an integral heating unit

29. Saito et al. teach the single wafer support of the first single-wafer load lock including a single pedestal having an integral heating unit (column 6, rows 42-44 and column 8, rows 17-24) for the purpose of effectively preventing the adhesion of moisture.

30. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the single wafer support of the first single-wafer load lock including a single pedestal having an integral heating unit in Kroeker and Toshima in order to prevent the adhesion of moisture as taught by Saito et al.

Response to Arguments

31. Applicant's arguments and amendments, filed 7/31/03, with respect to the rejection(s)of claim(s) using Kroeker have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Toshima. Toshima is used to teach a process chamber with a plurality of process stations as recited in the newly amended claims.

32. Applicant's arguments, filed 7/31/03, with respect to Savage have been fully considered and are persuasive. Savage fails to teach a plurality of load locks coupled to the same process chamber as recited in the newly amended claims.

Conclusion

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km
8 October 2003

Primary Examiner
AU 1763
P. Hassanzadeh